H12018

NOAA Form 76-35A

U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Ocean Survey

DESCRIPTIVE REPORT

Type of Survey:	Basic Hydrographic Survey
Registry Number:	H12018

LOCALITY

State:	Florida
General Locality:	Tampa Bay, FL
Sub-locality:	Port Manatee to Sunshine Skyway Bridge

2011

CHIEF OF PARTY
Mark J McMann

LIBRARY & ARCHIVES

Date:

NOAA FORM 77-28 (11-72)	U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION	REGISTRY NUMBER:
HYDROGRAPHIC TITLE SHEET		**H12018**

INSTRUCTIONS: The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

State:	**Florida**
General Locality:	**Tampa Bay, FL**
Sub-Locality:	**Port Manatee to Sunshine Skyway Bridge**
Scale:	**10,000**
Dates of Survey:	**04/01/2010 to 04/11/2011**
Instructions Dated:	**05/18/2011**
Project Number:	**OPR-J417-NRT1-11**
Field Unit:	**Navigation Response Team 1**
Chief of Party:	**Mark J McMann**
Soundings by:	**Singlebeam Echo Sounder Multibeam Echo Sounder**
Imagery by:	**Side Scan Sonar**
Verification by:	**Pacific Hydrographic Branch**
Soundings Acquired in:	**meters at Mean lower low water**
H-Cell Compilation Units:	***feet at Mean lower low water***

Remarks:

The purpose of this survey is to provide contemporary surveys to update National Ocean Service (NOS) nautical charts. All separates are filed with the hydrographic data. Revisions and end notes in red were generated during office processing. The processing branch concurs with all information and recommendations in the DR unless otherwise noted. Page numbering may be interrupted or non sequential. All pertinent records for this survey, including the Descriptive Report, are archived at the National Geophysical Data Center (NGDC) and can be retrieved via HTTP:// www.ngdc.noaa.gov/.

Descriptive Report to Accompany Survey H12018

Project: OPR-J417-NRT1-11

Locality: Tampa Bay, FL

Sublocality: Port Manatee to Sunshine Skyway Bridge

Scale: 1:10,000

April 2010 - April 2011

Navigation Response Team 1

Chief of Party: Mark J McMann

A. Area Surveyed

Port Manatee to Sunshine Skyway Bridge

A.1 Survey Limits

Data was acquired within the following survey limits:

Northeast Limit	Southwest Limit
27.66 N 82.55 W	27.59 N 82.67 W

Table 1: Survey Limits

Figure 101: Sheet C

Survey Limits were acquired in accordance with the requirements in the Project Instructions and the HSSD.

A.2 Survey Purpose

The intent of this survey is to supersede all bathymetry, seafloor features, and bottom characteristics within the assigned survey area.

A.3 Survey Quality

The entire survey is adequate to supersede previous data.

Data is adequate and within specification to supersede charted data in the common area.

A.4 Survey Coverage

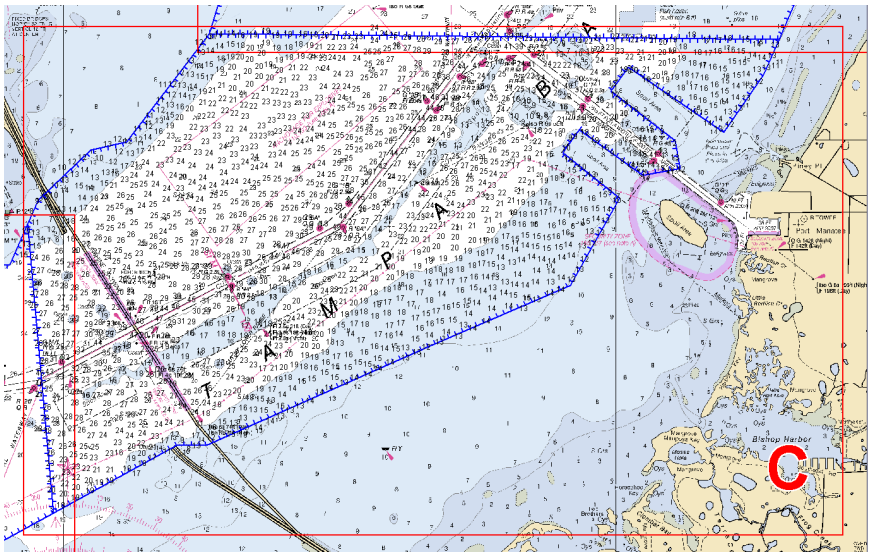


Figure 102: Sheet C coverage

Survey Coverage was in accordance with the requirements in the Project Instructions and the HSSD.

A.5 Survey Statistics

The following table lists the mainscheme and crossline acquisition mileage for this survey:

	HULL ID	*S3004*	*Total*
LNM	**SBES Mainscheme**	0	0
	MBES Mainscheme	0	0
	Lidar Mainscheme	0	0
	SSS Mainscheme	0	0
	SBES/MBES Combo Mainscheme	0	0
	SBES/SSS Combo Mainscheme	572.8	572.8
	MBES/SSS Combo Mainscheme	0	0
	SBES/MBES Combo Crosslines	27.7	27.7
	Lidar Crosslines	0	0
Number of Bottom Samples			18
Number of DPs			18
Number of Items Items Investigated by Dive Ops			0
Total Number of SNM			12.8

Table 2: Hydrographic Survey Statistics

The following table lists the specific dates of data acquisition for this survey:

Survey Dates
04/01/2010
04/11/2011

Table 3: Dates of Hydrography

Percentage of XL is calculated on 100% SSS coverage (286.4 LNM). Please refer to Appendix II for items and AWOIS investigated.

A.6 Shoreline

Shoreline was investigated in accordance with the Project Instructions and the HSSD.

Chart features per HCell.

A.7 Bottom Samples

Bottom Samples were acquired in accordance with the Project Instructions or the HSSD.

Eighteen bottom samples from the field are included in the HCell to be charted and one bottom sample from the ENC was imported to the HCell to be retained.

B. Data Acquisition and Processing

B.1 Equipment and Vessels

Refer to the Data Acquisition and Processing Report (DAPR) for a complete description of data acquisition and processing systems, survey vessels, quality control procedures and data processing methods. Additional information to supplement sounding and survey data, and any deviations from the DAPR are discussed in the following sections.

B.1.1 Vessels

The following vessels were used for data acquisition during this survey:

Hull ID	***S3004***
LOA	9.15 meters
Draft	0.5 meters

Table 4: Vessels Used

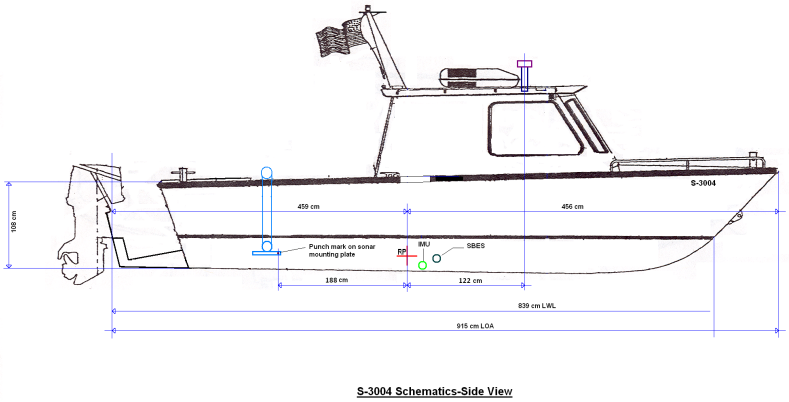


Figure 103: Launch 3004

B.1.2 Equipment

The following major systems were used for data acquisition during this survey:

Manufacturer	Model	Type
Klein	5000	SSS
Odom	CV200	SBES
Reson	8125	MBES
Applanix	POS-MV	Vessel Attitude System
Trimble	DSM 132	Positioning System
Odom	Digibar	Sound Speed System

Table 5: Major Systems Used

B.2 Quality Control

B.2.1 Crosslines

Crossline agreement was excellent throughout the survey area. Please refer to Separates/ section IV for quantitative comparison.

B.2.2 Uncertainty

Uncertainty values for the SBES Base surface was within IHO specs. Some outer beams of MBES lines are outside IHO specs, as well as the entirety of line 2011_073/54_1546. The data outside IHO specifications was not used to determine least depths.

B.2.3 Junctions

The only junction is with H12019, which was submitted subsequently to H12018. Junction agreement was excellent. The junction is to the southwest of H12018.

H12018 junctions with H12019 to the W and H12020 to the N. A common junction was made with an adjoining portion of H12019 to the W. A common junction will be made to H12020 to the N. during compilation process.

B.2.4 Sonar QC Checks

Sonar system quality control checks were conducted as detailed in the quality control section of the DAPR.

B.2.5 Equipment Effectiveness

B.2.5.1 There was no issue in the equipment effectiveness.

Please refer to DAPR/equipment/Echosounding for quality control checks. Daily confidence checks for the Side Scan Sonar were performed by observing sand waves and buoy blocks.

B.2.6 Factors Affecting Soundings

B.2.7 Sound Speed Methods

Sound Speed Cast Frequency: Casts were performed daily for SSS and periodically (<4 hours) during MBES data collection days.

B.2.8 Coverage Equipment and Methods

All Equipment and survey methods were used as detailed in the DAPR.

B.2.9 There was no issue.

SSS line plans were created to insure 200% bottom coverage. Contacts investigations were conducted using MBES.

B.3 Echo Sounding Corrections

B.3.1 Corrections to Echo Soundings

All Data reductions procedures conform to those detailed in the DAPR.

B.3.2 Calibrations

All sounding systems were calibrated as detailed in the DAPR.

B.4 Backscatter

Backscatter was not collected for this survey.

B.5 Data Processing

B.5.1 Software Updates

There were no software configuration changes after the DAPR was submitted.

The following Feature Object Catalog was used: S-57 in Pydro

B.5.2 Surfaces

The following CARIS surfaces were submitted to the Processing Branch:

Surface Name	Surface Type	Resolution	Depth Range	Surface Parameter	Purpose
H12018_MBES_CUBE_50cm	CUBE	0.5 meters	0 meters - 20 meters	NOAA_0.5m	Complete MBES
H12018_SBES_BASE_5m	BASE Uncertainty	5 meters	0 meters - 20 meters	N/A	SBES Set Line Spacing
H12018_200_1m	SSS Mosaic	1 meters	-	NOAA_1m	200% SSS
H12018_100_1m	SSS Mosaic	1 meters	-	NOAA_1m	100% SSS

Table 6: CARIS Surfaces

The SSS mosaic was at 1 meter resolution. The SBES base surface was at 5 meter resolution. The MBES Cube surface was at 50 centimeter resolution. The SSS and SBES grids cover the entire survey area. The MBES Cube covers only item investigations.

A 4 meter combined base surface was created during SAR review and used for the cartographic compilation of this survey.

C. Vertical and Horizontal Control

Additional information discussing the vertical or horizontal control for this survey can be found in the accompanying HVCR.

C.1 Vertical Control

The vertical datum for this project is Mean lower low water.

Standard Vertical Control Methods Used:

Discrete Zoning
TCARI

The following National Water Level Observation Network (NWLON) stations served as datum control for this survey:

Station Name	Station ID
McKay Bay	872-6667
Old Port Tampa	872-6607
Port Mantee	872-6384
St Petersburg	872-6520

Table 7: NWLON Tide Stations

File Name	Status
8726667.tid	Verified Observed
8726607.tid	Verified Observed
8726520.tid	Verified Observed
8726384.tid	Verified Observed

Table 8: Water Level Files (.tid)

File Name	Status
J417NT12010CORP.zdf	Final
J417NRT12011.tc	Final

Table 9: Tide Correctors (.zdf or .tc)

A request for final approved tides was sent to N/OPS1 on 05/04/2011. The final tide note was received on 05/17/2011.

Tide note is attached to this document.

C.2 Horizontal Control

The horizontal datum for this project is North American Datum of 1983 (NAD83), zone 17 N..

The following DGPS Stations were used for horizontal control:

DGPS Stations
Tampa

Table 10: USCG DGPS Stations

D. Results and Recommendations

D.1 Chart Comparison

D.1.1 Raster Charts

The following are the largest scale raster charts, which cover the survey area:

Chart	Scale	Edition	Edition Date	LNM Date	NM Date
11415	1:40000	8	08/2006	05/03/2011	05/21/2011
11416	1:80000	10	10/2008	05/03/2011	05/21/2011

Table 11: Largest Scale Raster Charts

11415

There is excellent agreement between the current survey and the chart with current survey soundings generally between 1-2 feet deeper than the chart.

11416

There is excellent agreement between the current survey and the chart with current survey soundings generally between 1-2 feet deeper than the chart.

The lastest 11416 chart was used for the compilation of H12018: Chart Kapp Scale Edition Edition Date NTM Date 11416 2983 1:40,000 10th 10/01/2008 11/26/2011

D.1.2 Electronic Navigational Charts

The following are the largest scale ENCs, which cover the survey area:

ENC	Scale	Edition	Update Application Date	Issue Date	Preliminary?
US5FL12M	1:80,000	46	01/18/2011	05/03/2011	NO
US5FL11M	1:80,000	31	01/11/2011	03/21/2011	NO

Table 12: Largest Scale ENCs

US5FL12M

There is excellent agreement between the current survey and the ENC with current survey soundings generally between 1-2 feet deeper than the ENC.

US5FL11M

There is excellent agreement between the current survey and the ENC with current survey soundings generally between 1-2 feet deeper than the ENC.

D.1.3 AWOIS Items

Number of AWOIS Items Addressed: 8
Number of AWOIS Items Not Addressed: 0

All assigned AWOIS items investigated with 200% SSS. Items which produced significant SSS contacts were developed with MB. See the AWOIS report in the Appendices for all recommendations.

AWOIS report is attached to this document.

D.1.4 Charted Features

The Port Manatee Channel has a noted depth of "35.5 feet for a width of 400 ft 2005". Current survey depths are deeper than the note. The Mullet Key channel depths are the same or deeper than the USACOE tabulated depths. The 'anchorage for explosive' area depths agreed well with current survey.

A blue note was added to the HCell to update the month and the year.

D.1.5 Uncharted Features

Sixty six features were investigated and are addressed in the Survey Features Report in the Appendix II.

The submitted hob files were used in the compilation of HCell H12018. During compilation, some modifications were made to accommodate chart scale. Chart features as depicted in the HCell.

D.1.6 Dangers to Navigation

No Danger to Navigation Reports were submitted for this survey.

D.1.7 Shoal and Hazardous Features

None

D.1.8 Channels

Survey depths met or exceeded tabulated Channel Depths from the USACE.

During Compilation the following depths in feet were observed in both channels. LOQ LIQ RIQ ROQ Cut "A' Channel. 44.1 42.3 43.3 41.1 Cut "B" Channel 42.2 42.1 44.2 42.5

D.2 Additional Results

D.2.1 Shoreline

None

D.2.2 Prior Surveys

None

D.2.3 Aids to Navigation

All aids to navigation serve their intended purpose.

Chart ATONs per latest ATONIS information.

D.2.4 Overhead Features

Charted bridge clearances for the Sunshine Skyway and the adjoining fishing piers are presumed to be correct. NRT1 does not have the ability to make these measurements accurately.

D.2.5 Submarine Features

A charted pipeline through the southeast portion of the survey area was seen on SSS records and in several places is 2-3 feet shoaler than the surrounding area. The pipeline is charted adequately.

A blue note was added to the HCell to retain the charted pipeline. During compilation, some modifications were made to accommodate chart scale. Chart features as depicted in the HCell.

D.2.6 Ferry Routes and Terminals

None

D.2.7 Platforms

None

D.2.8 Significant Features

None

D.2.9 Construction and Dredging

None

E Approval Sheet

As Chief of Party, Field operations for this hydrographic survey were conducted under my direct supervision, with frequent personal checks of progress and adequacy. I have reviewed the attached survey data and reports.

All field sheets, this Descriptive Report, and all accompanying records and data are approved. All records are forwarded for final review and processing to the Processing Branch.

The survey data meets or exceeds requirements as set forth in the NOS Hydrographic Surveys and Specifications Deliverables Manual, Field Procedures Manual, Standing and Letter Instructions, and all HSD Technical Directives. These data are adequate to supersede charted data in their common areas. This survey is complete and no additional work is required with the exception of deficiencies noted in the Descriptive Report.

Approver Name	Approver Title	Approval Date	Signature
Mark J McMann	Chief of Party	07/11/2011	Digitally signed by Mark J. McMann DN: cn=Mark J. McMann, o=NRT-1, ou=NSD, email=Mark.McMann@noaa.gov, c=US Date: 2011.07.12 09:07:49 -05'00'

F. Table of Acronyms

Acronym	Definition
AFF	Assigned Features File
AHB	Atlantic Hydrographic Branch
AST	Assistant Survey Technician
ATON	Aid to Navigation
AWOIS	Automated Wreck and Obstruction Information System
BAG	Bathymetric Attributed Grid
BASE	Bathymetry Associated with Statistical Error
CO	Commanding Officer
CO-OPS	Center for Operational Products and Services
CORS	Continually Operating Reference Staiton
CTD	Conductivity Temperature Depth
CEF	Chart Evaluation File
CSF	Composite Source File
CST	Chief Survey Technician
CUBE	Combined Uncertainty and Bathymetry Estimator
DAPR	Data Acquisition and Processing Report
DGPS	Differential Global Positioning System
DP	Discrete Position
DR	Descriptive Report
DTON	Danger to Navigation
ENC	Electronic Navigational Chart
ERS	Ellipsoidal Referenced Survey
ERZT	Ellipsoidally Referenced Zoned Tides
FOO	Field Operations Officer
FPM	Field Procedures Manual
GAMS	GPS Azimuth Measurement Subsystem
GC	Geographic Cell
GPS	Global Positioning System
HIPS	Hydrographic Information Processing System
HSD	Hydrographic Surveys Division
HSSDM	Hydrographic Survey Specifications and Deliverables Manual

Acronym	Definition
HSTP	Hydrographic Systems Technology Programs
HSX	Hypack Hysweep File Format
HTD	Hydrographic Surveys Technical Directive
HVCR	Horizontal and Vertical Control Report
HVF	HIPS Vessel File
IHO	International Hydrographic Organization
IMU	Inertial Motion Unit
ITRF	International Terrestrial Reference Frame
LNM	Local Notice to Mariners
LNM	Linear Nautical Miles
MCD	Marine Chart Division
MHW	Mean High Water
MLLW	Mean Lower Low Water
NAD 83	North American Datum of 1983
NAIP	National Agriculture and Imagery Program
NALL	Navigable Area Limit Line
NM	Notice to Mariners
NMEA	National Marine Electronics Association
NOAA	National Oceanic and Atmospheric Administration
NOS	National Ocean Service
NRT	Navigation Response Team
NSD	Navigation Services Division
OCS	Office of Coast Survey
OMAO	Office of Marine and Aviation Operations (NOAA)
OPS	Operations Branch
MBES	Multibeam Echosounder
NWLON	National Water Level Observation Network
PDBS	Phase Differencing Bathymetric Sonar
PHB	Pacific Hydrographic Branch
POS/MV	Position and Orientation System for Marine Vessels
PPK	Post Processed Kinematic
PPP	Precise Point Positioning
PPS	Pulse per second

Acronym	Definition
PRF	Project Reference File
PS	Physical Scientist
PST	Physical Science Technician
RNC	Raster Navigational Chart
RTK	Real Time Kinematic
SBES	Singlebeam Echosounder
SBET	Smooth Best Estimate and Trajectory
SNM	Square Nautical Miles
SSS	Side Scan Sonar
ST	Survey Technician
SVP	Sound Velocity Profiler
TCARI	Tidal Constituent And Residual Interpolation
TPU	Total Porpagated Error
TPU	Topside Processing Unit
USACE	United States Army Corps of Engineers
USCG	United Stated Coast Guard
UTM	Universal Transverse Mercator
XO	Exectutive Officer
ZDA	Global Positiong System timing message
ZDF	Zone Definition File

H12018 AWOIS REPORT

Registry Number: H12018
State: Florida
Locality: Tampa Bay
Sub-locality: Port Manatee to Sunshine Skyway Bridge
Project Number: OPR-J417-NRT1-11
Survey Dates: 02/16/2011 - 03/14/2011

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
11411	17th	03/01/2008	1:40,000 (11411_1)	[L]NTM: ?
11415	8th	08/01/2006	1:40,000 (11415_1)	[L]NTM: ?
11416	10th	10/01/2008	1:40,000 (11416_1)	USCG LNM: 04/07/2009 (05/05/2009) NGA NTM: 04/10/2004 (05/09/2009)
11412	44th	06/01/2006	1:80,000 (11412_1)	[L]NTM: ?
11400	36th	01/01/2006	1:456,394 (11400_1)	[L]NTM: ?
1114A	36th	01/01/2006	1:456,394 (1114A_1)	[L]NTM: ?
1113A	28th	07/01/2005	1:470,940 (1113A_1)	[L]NTM: ?
11420	28th	07/01/2005	1:470,940 (11420_1)	[L]NTM: ?
11451	33rd	09/01/2007	1:495,362 (11451_17)	[L]NTM: ?
11006	32nd	08/01/2005	1:875,000 (11006_1)	[L]NTM: ?
11013	47th	02/01/2008	1:1,200,000 (11013_1)	[L]NTM: ?
411	52nd	09/01/2007	1:2,160,000 (411_1)	[L]NTM: ?

* Correction(s) - *source: last correction applied (last correction reviewed--"cleared date")*

Features

No.	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	Obstruction	3.73 m	27° 36' 15.9" N	082° 39' 06.0" W	14441
1.2	Obstruction	5.49 m	27° 37' 05.2" N	082° 39' 25.8" W	10313
1.3	Obstruction	7.18 m	27° 37' 21.3" N	082° 39' 36.3" W	14440
1.4	Obstruction	6.69 m	27° 37' 22.9" N	082° 39' 39.4" W	14439
1.5	Obstruction	8.06 m	27° 37' 39.1" N	082° 39' 57.2" W	10316

1.6	Obstruction	7.88 m	27° 37' 35.6" N	082° 40' 14.2" W	10317
1.7	Obstruction	6.76 m	27° 37' 17.9" N	082° 39' 54.0" W	10315
1.8	Obstruction	7.03 m	27° 36' 56.8" N	082° 38' 35.0" W	10310

1 - DR_AWOIS

1.1) Profile/Beam 595/98 / _000_1616

Primary Feature for AWOIS Item #14441

Search Position:	27° 36' 16.7" N, 082° 39' 07.7" W
Historical Depth:	4.27 m
Search Radius:	50
Search Technique:	S2, ES, MB
Technique Notes:	[None]

History Notes:

LNM 49/96-- USCG; From a NOS Survey, H10598, an obstruction with a least depth of 14 feet was added to the chart. (CEH 2/2009)

Survey Summary

Survey Position:	27° 36' 15.9" N, 082° 39' 06.0" W
Least Depth:	3.73 m (= 12.23 ft = 2.038 fm = 2 fm 0.23 ft)
TPU (±1.96σ):	**THU (TPEh)** ±1.962 m ; **TVU (TPEv)** ±0.267 m
Timestamp:	2011-047.16:16:56.717 (02/16/2011)
Survey Line:	h12018 / s3004_reson8125 / 2011-047 / _000_1616
Profile/Beam:	595/98
Charts Affected:	11411_1, 11415_1, 11416_1, 11412_1, 1114A_1, 11400_1, 1113A_1, 11420_1, 11451_17, 11006_1, 11013_1, 411_1

Remarks:

Awois 14441, Charted 14ft obstruction. The feature was located with side scan sonar and developed using a multibeam echosounder.

Feature Correlation

Source	Feature	Range	Azimuth	Status
_000_1616	595/98	0.00	000.0	Primary
tb100805132600	0004	14.09	043.5	Secondary (grouped)
tb100805132600	0003	22.41	233.3	Secondary (grouped)
tb100518145600	0001	25.44	235.6	Secondary (grouped)
tb100518150800	0001	48.95	151.7	Secondary (grouped)
_000_1609a	1721/26	51.05	134.5	Secondary (grouped)
tb100805132600	0001	51.89	112.8	Secondary (grouped)

AWOIS H12018	AWOIS # 14441	52.50	119.7	Secondary (grouped)
tb100518150800	0008	57.20	109.4	Secondary (grouped)
tb100805132600	0002	57.60	178.2	Secondary (grouped)
tb100805131500	0002	70.83	170.4	Secondary (grouped)

Hydrographer Recommendations

Update obstruction per current survey depth and position.

Cartographically-Rounded Depth (Affected Charts):

12ft (11411_1, 11415_1, 11416_1, 11412_1, 11451_17)

2fm (1114A_1, 11400_1, 1113A_1, 11420_1, 11006_1, 11013_1, 411_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes:

EXPSOU - 2:shoaler than range of depth of the surrounding depth area

QUASOU - 1:depth known

SORDAT - 20110411

SORIND - US,US,nsurf,H12108

TECSOU - 2,3:found by side scan sonar,found by multi-beam

VALSOU - 3.728 m

WATLEV - 3:always under water/submerged

Office Notes

Soundings have been designated properly in the area to capture least depths. Update obstruction per current survey depth and position.

Feature Images

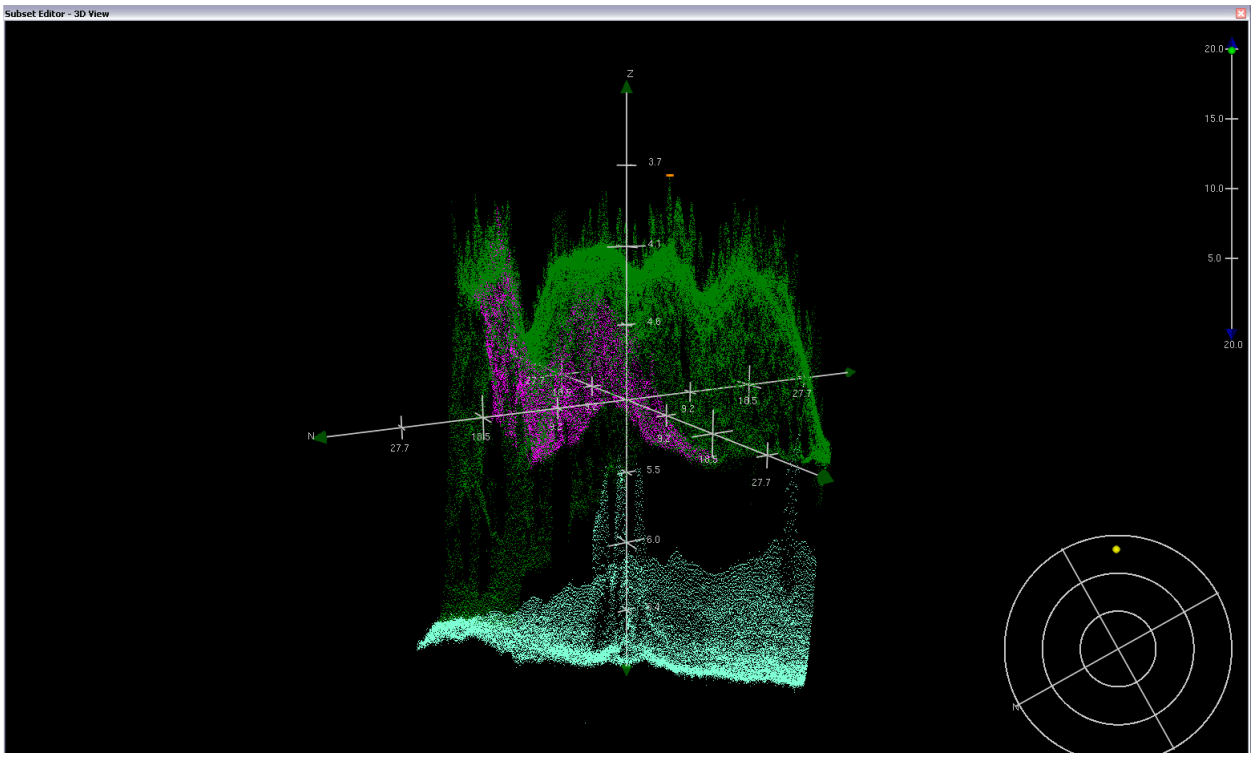


Figure 1.1.1

1.2) Profile/Beam 1089/2 / _000_1717

Primary Feature for AWOIS Item #10313

Search Position: 27° 37' 05.2" N, 082° 39' 25.8" W

Historical Depth: 4.57 m

Search Radius: 50

Search Technique: MB, S2, ES

Technique Notes: [None]

History Notes:

HISTORY

H-10598/95--OPR-J343-MI; SIDE SCAN SONAR AND DIVER INVESTIGATION REVEALED A 24 FT X 30 FT HEAP OF CONCRETE RUBBLE, ROCKS, METAL I-BEAMS, AND METAL RODS. LEAST DEPTH WAS 15 FT.

Survey Summary

Survey Position: 27° 37' 05.2" N, 082° 39' 25.8" W

Least Depth: 5.49 m (= 18.01 ft = 3.002 fm = 3 fm 0.01 ft)

TPU (±1.96σ): **THU (TPEh)** ±1.970 m ; **TVU (TPEv)** ±0.307 m

Timestamp: 2011-047.17:18:09.679 (02/16/2011)

Survey Line: h12018 / s3004_reson8125 / 2011-047 / _000_1717

Profile/Beam: 1089/2

Charts Affected: 11411_1, 11415_1, 11416_1, 11412_1, 1114A_1, 11400_1, 11451_17, 11006_1, 11013_1, 411_1

Remarks:

Contact detected in 200% SSS coverage and investigated using MBES . Item determined to be AWOIS 10313, Charted 15 ft obstruction.

Feature Correlation

Source	Feature	Range	Azimuth	Status
_000_1717	1089/2	0.00	000.0	Primary
AWOIS H12018	AWOIS # 10313	2.53	299.0	Secondary (grouped)
tb100715150100	0001	18.05	218.7	Secondary (grouped)
tb100520133900	0007	20.01	231.4	Secondary (grouped)
_000_1719	255/197	44.47	139.6	Secondary (grouped)

tb100520133900	0002	46.83	034.4	Secondary (grouped)
_000_1722a	708/202	47.36	031.5	Secondary (grouped)
tb100715150100	0002	53.91	153.9	Secondary (grouped)
_000_1724a	279/188	68.72	100.1	Secondary (grouped)
tb100520140600	0029	75.36	100.0	Secondary (grouped)
tb100520133900	0001	85.48	038.5	Secondary (grouped)

Hydrographer Recommendations

Update obstruction per current survey depth and position.

Cartographically-Rounded Depth (Affected Charts):

18ft (11411_1, 11415_1, 11416_1, 11412_1, 11451_17)

3fm (1114A_1, 11400_1, 11006_1, 11013_1, 411_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes:

EXPSOU - 2:shoaler than range of depth of the surrounding depth area

QUASOU - 1:depth known

SORDAT - 20110411

SORIND - US,US,nsurf,H12108

TECSOU - 2,3:found by side scan sonar,found by multi-beam

VALSOU - 5.490 m

WATLEV - 3:always under water/submerged

Office Notes

Concur. Update obstruction per current survey depth and position.

Feature Images

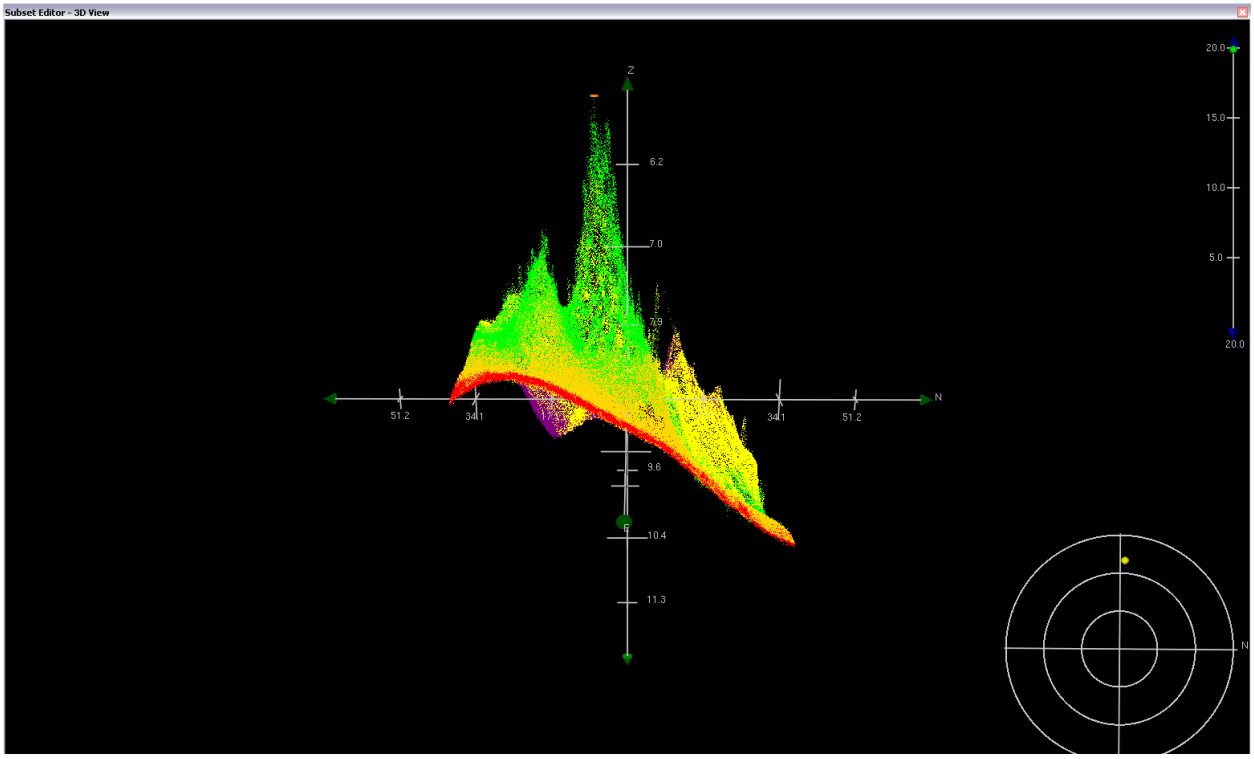


Figure 1.2.1

1.3) Profile/Beam 1263/52 / _000_1751

Primary Feature for AWOIS Item #14440

Search Position: 27° 37' 20.2" N, 082° 39' 37.2" W

Historical Depth: 5.79 m

Search Radius: 50

Search Technique: S2, ES, MB

Technique Notes: [None]

History Notes:

LNM 49/96-- USCG; From a NOS Survey, H10598, an obstruction with a least depth of 19 feet was added to the chart. (CEH 2/2009)

Survey Summary

Survey Position: 27° 37' 21.3" N, 082° 39' 36.3" W

Least Depth: 7.18 m (= 23.57 ft = 3.928 fm = 3 fm 5.57 ft)

TPU (±1.96σ): **THU (TPEh)** ±1.970 m ; **TVU (TPEv)** ±0.280 m

Timestamp: 2011-047.17:53:12.259 (02/16/2011)

Survey Line: h12018 / s3004_reson8125 / 2011-047 / _000_1751

Profile/Beam: 1263/52

Charts Affected: 11411_1, 11415_1, 11416_1, 11412_1, 1114A_1, 11400_1, 11451_17, 11006_1, 11013_1, 411_1

Remarks:

Contact detected in 200% SSS coverage and investigated using MBES . Item determined to be AWOIS 14440, Charted 19 ft obstruction.

Feature Correlation

Source	Feature	Range	Azimuth	Status
_000_1751	1263/52	0.00	000.0	Primary
tb100520160900	0001	6.20	062.1	Secondary (grouped)
AWOIS H12018	AWOIS # 14440	42.88	034.5	Secondary (grouped)
tb100715124100	0001	46.15	041.4	Secondary (grouped)
_000_1806	1312/174	60.63	059.6	Secondary (grouped)
_000_1758	1920/70	88.87	353.4	Secondary (grouped)
tb100520154600	0001	89.17	351.1	Secondary (grouped)

_000_1755a	862/93	92.07	345.2	Secondary (grouped)
tb100520154600	0007	93.05	342.9	Secondary (grouped)
tb100520160900	0004	101.91	008.7	Secondary (grouped)
tb100520154600	0003	101.94	005.7	Secondary (grouped)
_000_1802a	976/13	102.51	007.3	Secondary (grouped)

Hydrographer Recommendations

Update obstruction per current survey depth and position.

Cartographically-Rounded Depth (Affected Charts):

23ft (11411_1, 11415_1, 11416_1, 11412_1, 11451_17)

3 ¾fm (1114A_1, 11400_1, 11006_1, 11013_1, 411_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes:

EXPSOU - 1:within the range of depth of the surrounding depth area

QUASOU - 1:depth known

SORDAT - 20110411

SORIND - US,US,nsurf,H12108

TECSOU - 2,3:found by side scan sonar,found by multi-beam

VALSOU - 7.183 m

WATLEV - 3:always under water/submerged

Office Notes

There is a feature that stands 2m off the seabed within the radius, which measures .7mx.7m in width and length. There are no distingushing characteristics to aid in identification as an AWOIS item. Add the new obstruction feature, Update per current survey depth and position.

Feature Images

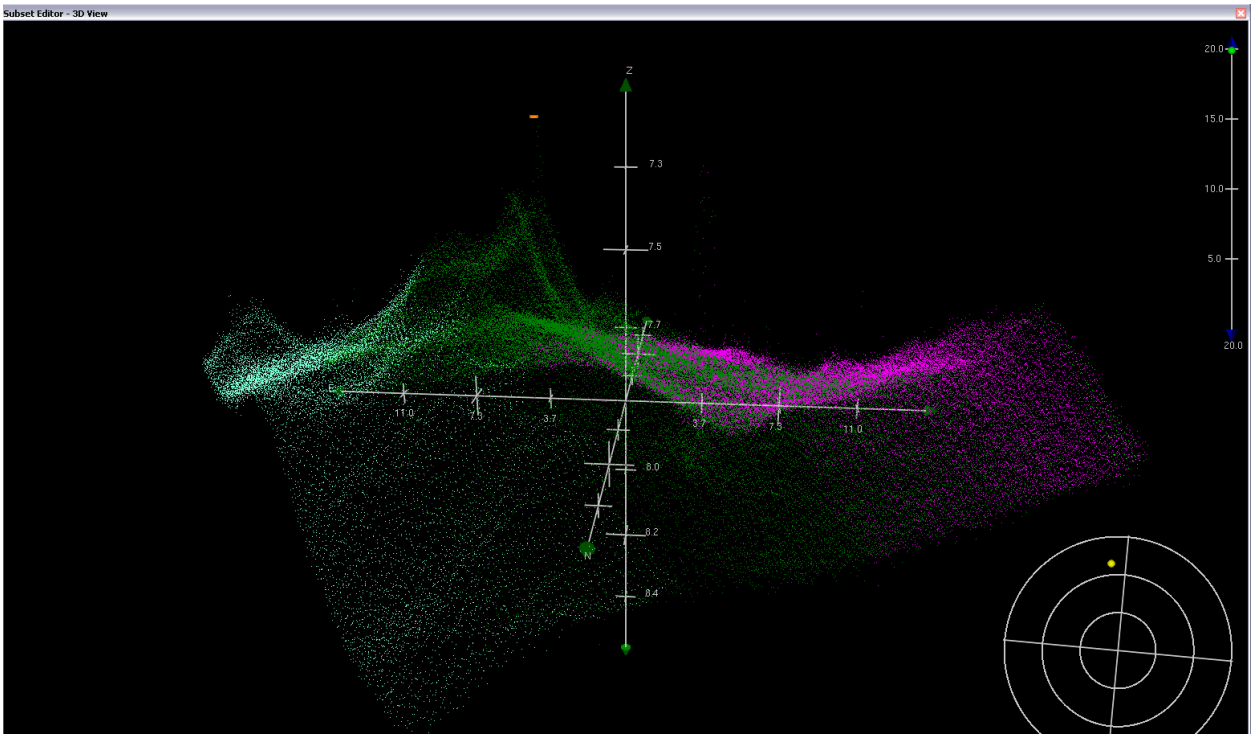


Figure 1.3.1

1.4) Profile/Beam 2082/72 / _000_1802a

Primary Feature for AWOIS Item #14439

Search Position: 27° 37' 23.0" N, 082° 39' 39.4" W

Historical Depth: 6.10 m

Search Radius: 50

Search Technique: S2, ES, MB

Technique Notes: [None]

History Notes:

LNM 49/96-- USCG; From a NOS Survey, H10598, an obstruction with a least depth of 20 feet was added to the chart. (CEH 2/2009)

Survey Summary

Survey Position: 27° 37' 22.9" N, 082° 39' 39.4" W

Least Depth: 6.69 m (= 21.96 ft = 3.660 fm = 3 fm 3.96 ft)

TPU (±1.96σ): **THU (TPEh)** ±1.967 m ; **TVU (TPEv)** ±0.272 m

Timestamp: 2011-047.18:04:45.031 (02/16/2011)

Survey Line: h12018 / s3004_reson8125 / 2011-047 / _000_1802a

Profile/Beam: 2082/72

Charts Affected: 11411_1, 11415_1, 11416_1, 11412_1, 1114A_1, 11400_1, 11451_17, 11006_1, 11013_1, 411_1

Remarks:

Contact detected in 200% SSS coverage and investigated using MBES . Item determined to be AWOIS 14439, Charted 20 ft obstruction.

Feature Correlation

Source	Feature	Range	Azimuth	Status
_000_1802a	2082/72	0.00	000.0	Primary
AWOIS H12018	AWOIS # 14439	1.93	177.7	Secondary
tb100713165400	0003	2.10	180.9	Secondary (grouped)
tb100520163600	0001	3.19	277.3	Secondary (grouped)
tb100713165400	0004	10.46	011.5	Secondary (grouped)
tb100520163600	0002	15.21	200.1	Secondary (grouped)
_000_1755a	2320/43	49.46	177.8	Secondary (grouped)

tb100713165400	0005	57.07	173.2	Secondary (grouped)
tb100520163600	0004	75.40	074.4	Secondary (grouped)
_000_1815	326/52	79.94	074.7	Secondary (grouped)
tb100520170100	0002	83.74	074.9	Secondary (grouped)

Hydrographer Recommendations

Update obstruction per current survey depth and position.

Cartographically-Rounded Depth (Affected Charts):

22ft (11411_1, 11415_1, 11416_1, 11412_1, 11451_17)

3 ½fm (1114A_1, 11400_1, 11006_1, 11013_1, 411_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes:

EXPSOU - 1:within the range of depth of the surrounding depth area

QUASOU - 1:depth known

SORDAT - 20110411

SORIND - US,US,nsurf,H12018

TECSOU - 2,3:found by side scan sonar,found by multi-beam

VALSOU - 6.694 m

WATLEV - 3:always under water/submerged

Office Notes

Image AWOIS_14439.png added to PSS, illustrates a feature to the south that is more likely to be wreck debris. However, this obstruction is of greater navigational significance as it shoals considerably more than the probable wreck debris. Concur with recommendation. Update obstruction per current survey depth and position.

Feature Images

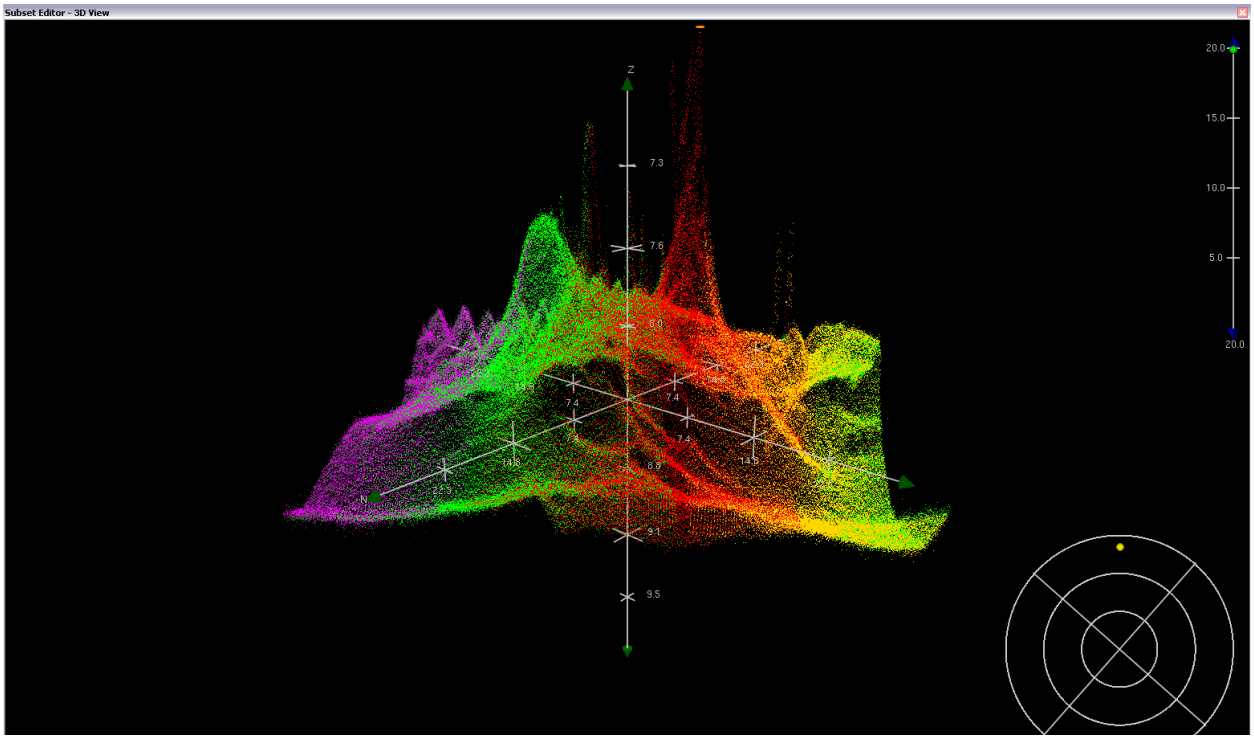


Figure 1.4.1

1.5) Profile/Beam 552/54 / _000_1830

Primary Feature for AWOIS Item #10316

Search Position: 27° 37' 39.1" N, 082° 39' 57.4" W

Historical Depth: 7.92 m

Search Radius: 50

Search Technique: MB, S2, ES

Technique Notes: [None]

History Notes:

HISTORY

H-10598/95--OPR-J343-MI; SIDE SCAN SONAR AND DIVER INVESTIGATION REVEALED A 5 X 5 FT CONCRETE BLOCK, 3 FT OFF THE BOTTOM. LEAST DEPTH WAS 26 FT.

Survey Summary

Survey Position: 27° 37' 39.1" N, 082° 39' 57.2" W

Least Depth: 8.06 m (= 26.44 ft = 4.407 fm = 4 fm 2.44 ft)

TPU (±1.96σ): **THU (TPEh)** ±1.972 m ; **TVU (TPEv)** ±0.283 m

Timestamp: 2011-047.18:31:24.117 (02/16/2011)

Survey Line: h12018 / s3004_reson8125 / 2011-047 / _000_1830

Profile/Beam: 552/54

Charts Affected: 11411_1, 11415_1, 11416_1, 11412_1, 1114A_1, 11400_1, 11451_17, 11006_1, 11013_1, 411_1

Remarks:

Contact detected in 200% SSS coverage and investigated using MBES . Item determined to be AWOIS 10316, Charted 26ft obstruction.

Feature Correlation

Source	Feature	Range	Azimuth	Status
_000_1830	552/54	0.00	000.0	Primary
tb100713142300	0002	1.77	293.3	Secondary (grouped)
tb100524152000	0002	2.54	087.3	Secondary (grouped)
AWOIS H12018	AWOIS # 10316	5.09	082.1	Secondary (grouped)

Hydrographer Recommendations

Update obstruction per current survey depth and position.

Cartographically-Rounded Depth (Affected Charts):

26ft (11411_1, 11415_1, 11416_1, 11412_1, 11451_17)

4 ¼fm (1114A_1, 11400_1, 11006_1, 11013_1, 411_1)

S-57 Data

Geo object 1:	Obstruction (OBSTRN)
Attributes:	EXPSOU - 1:within the range of depth of the surrounding depth area
	QUASOU - 1:depth known
	SORDAT - 20110411
	SORIND - US,US,nsurf,H12018
	TECSOU - 2,3:found by side scan sonar,found by multi-beam
	VALSOU - 8.059 m
	WATLEV - 3:always under water/submerged

Office Notes

Concur. Update obstruction per current survey depth and position.

Feature Images

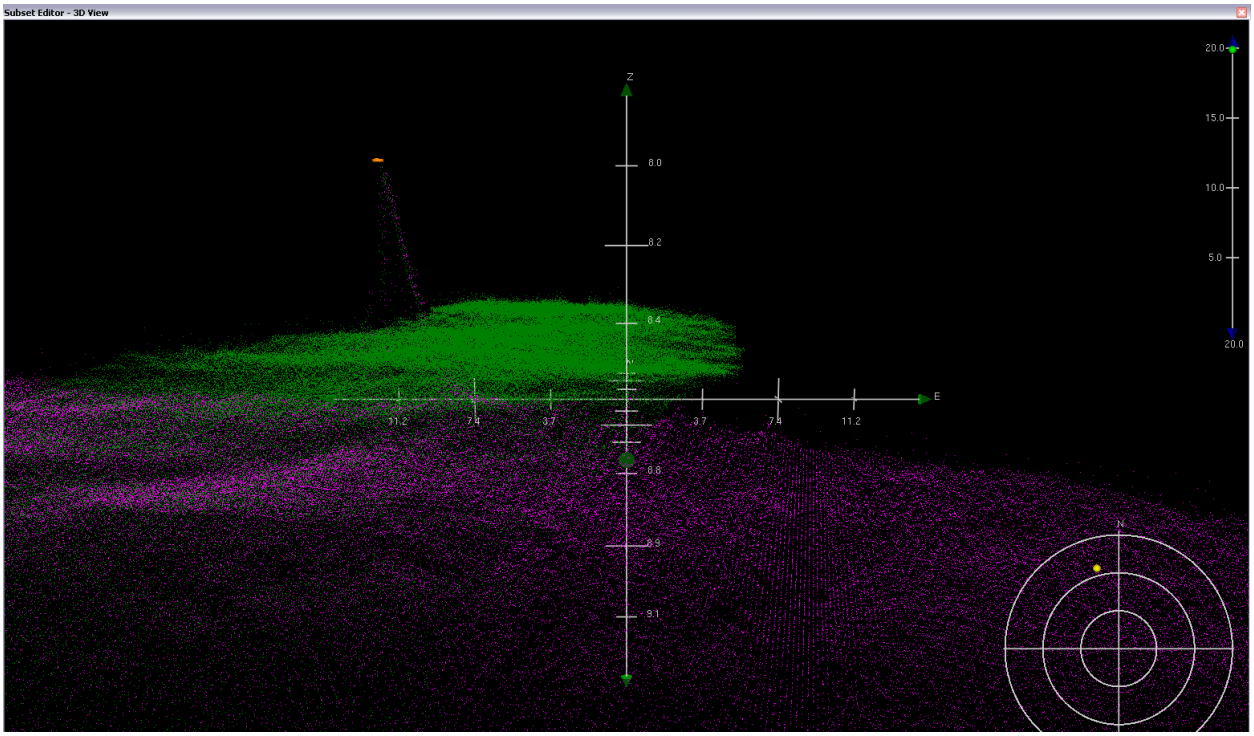


Figure 1.5.1

1.6) Profile/Beam 323/223 / _000_1838

Primary Feature for AWOIS Item #10317

Search Position: 27° 37' 35.6" N, 082° 40' 14.2" W

Historical Depth: 7.32 m

Search Radius: 50

Search Technique: MB, S2, ES

Technique Notes: [None]

History Notes:

HISTORY

H-10598/95--OPR-J343-MI; SIDE SCAN SONAR AND DIVER INVESTIGATION REVEALED TWO CONCRETE BLOCKS, SIDE BY SIDE, 4 FT X 5 FT , 3 FT HIGH. LEAST DEPTH WAS 24 FT.

Survey Summary

Survey Position: 27° 37' 35.6" N, 082° 40' 14.2" W

Least Depth: 7.88 m (= 25.86 ft = 4.310 fm = 4 fm 1.86 ft)

TPU (±1.96σ): **THU (TPEh)** ±1.975 m ; **TVU (TPEv)** ±0.311 m

Timestamp: 2011-047.18:38:31.333 (02/16/2011)

Survey Line: h12018 / s3004_reson8125 / 2011-047 / _000_1838

Profile/Beam: 323/223

Charts Affected: 11411_1, 11415_1, 11416_1, 11412_1, 1114A_1, 11400_1, 11451_17, 11006_1, 11013_1, 411_1

Remarks:

Contact detected in 200% SSS coverage and investigated using MBES . Item determined to be AWOIS 10317, Charted 24ft obstruction.

Feature Correlation

Source	Feature	Range	Azimuth	Status
_000_1838	323/223	0.00	000.0	Primary
AWOIS H12018	AWOIS # 10317	1.36	154.2	Secondary (grouped)
tb100713134200	0001	3.06	104.6	Secondary (grouped)
tb100713140200	0002	4.57	338.3	Secondary (grouped)

Hydrographer Recommendations

Update obstruction per current survey depth and position.

Cartographically-Rounded Depth (Affected Charts):

26ft (11411_1, 11415_1, 11416_1, 11412_1, 11451_17)

4 ¼fm (1114A_1, 11400_1, 11006_1, 11013_1, 411_1)

S-57 Data

Geo object 1:	Obstruction (OBSTRN)
Attributes:	EXPSOU - 1:within the range of depth of the surrounding depth area
	QUASOU - 1:depth known
	SORDAT - 20110411
	SORIND - US,US,nsurf,H12018
	TECSOU - 2,3:found by side scan sonar,found by multi-beam
	VALSOU - 7.883 m
	WATLEV - 3:always under water/submerged

Office Notes

Concur. Update obstruction per current survey depth and position.

Feature Images

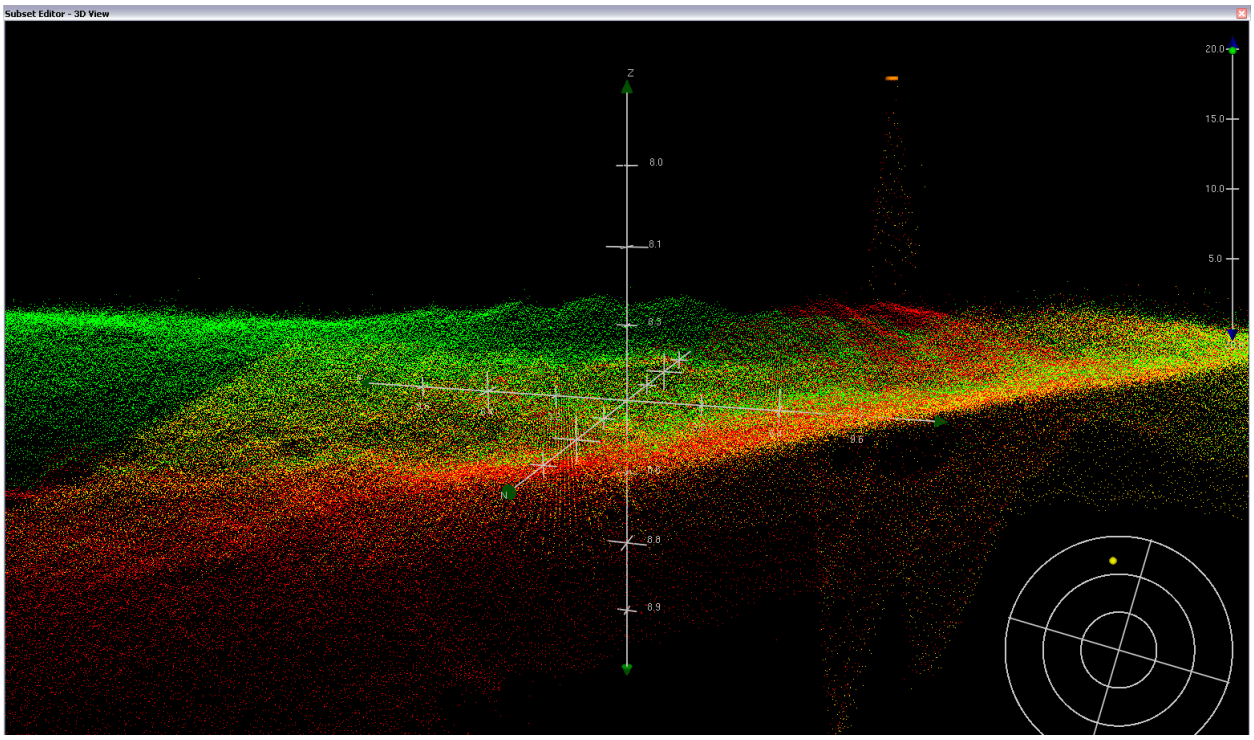


Figure 1.6.1

1.7) Profile/Beam 715/96 / _000_1846

Primary Feature for AWOIS Item #10315

Search Position: 27° 37' 18.1" N, 082° 39' 54.1" W

Historical Depth: 6.71 m

Search Radius: 50

Search Technique: MB, S2, ES

Technique Notes: [None]

History Notes:

HISTORY

H-10598/95--OPR-J343-MI; SIDE SCAN SONAR AND DIVER INVESTIGATION REVEALED 25 FT LONG METAL CONTAINER, FLAT ON TOP, WITH ROUNDED EDGES, AND 8 FT WIDE. LEAST DEPTH WAS 22 FT.

Survey Summary

Survey Position: 27° 37' 17.9" N, 082° 39' 54.0" W

Least Depth: 6.76 m (= 22.18 ft = 3.697 fm = 3 fm 4.18 ft)

TPU (±1.96σ): **THU (TPEh)** ±1.967 m ; **TVU (TPEv)** ±0.269 m

Timestamp: 2011-047.18:47:02.843 (02/16/2011)

Survey Line: h12018 / s3004_reson8125 / 2011-047 / _000_1846

Profile/Beam: 715/96

Charts Affected: 11411_1, 11415_1, 11416_1, 11412_1, 1114A_1, 11400_1, 11451_17, 11006_1, 11013_1, 411_1

Remarks:

Contact detected in 200% SSS coverage and investigated using MBES . Item determined to be AWOIS 10315, Charted 22ft obstruction.

Feature Correlation

Source	Feature	Range	Azimuth	Status
_000_1846	715/96	0.00	000.0	Primary
tb100713165400	0006	1.85	280.3	Secondary (grouped)
tb100520170100	0001	2.44	174.4	Secondary (grouped)
AWOIS H12018	AWOIS # 10315	5.39	136.5	Secondary (grouped)

Hydrographer Recommendations

Update obstruction per current survey depth and position.

Cartographically-Rounded Depth (Affected Charts):

22ft (11411_1, 11415_1, 11416_1, 11412_1, 11451_17)

3 ¾fm (1114A_1, 11400_1, 11006_1, 11013_1, 411_1)

S-57 Data

Geo object 1:	Obstruction (OBSTRN)
Attributes:	EXPSOU - 1:within the range of depth of the surrounding depth area
	QUASOU - 1:depth known
	SORDAT - 20110411
	SORIND - US,US,nsurf,H12018
	TECSOU - 2,3:found by side scan sonar,found by multi-beam
	VALSOU - 6.761 m
	WATLEV - 3:always under water/submerged

Office Notes

Concur. Update obstruction per current survey depth and position.

Feature Images

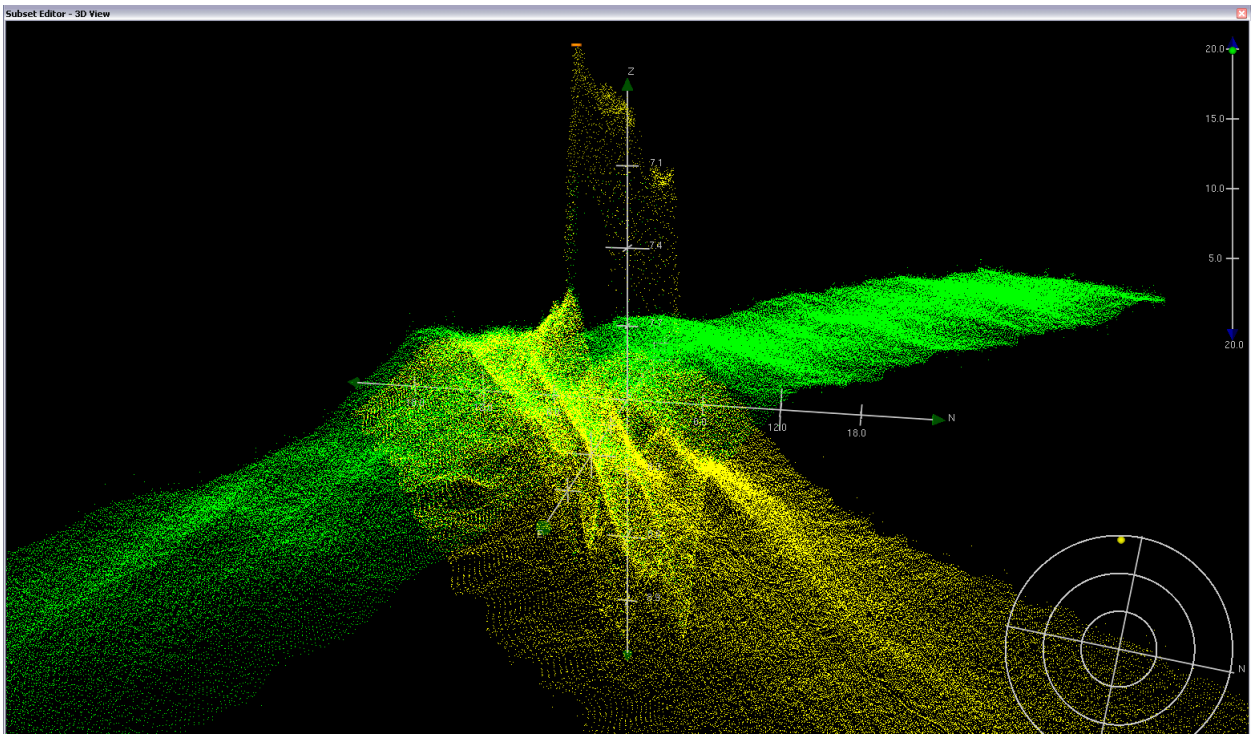


Figure 1.7.1

1.8) Profile/Beam 160/131 / _069_1629

Primary Feature for AWOIS Item #10310

Search Position: 27° 36' 56.8" N, 082° 38' 34.8" W

Historical Depth: 6.40 m

Search Radius: 50

Search Technique: MB, S2, ES

Technique Notes: [None]

History Notes:

HISTORY

H-10598/95--OPR-J343-MI; SIDE SCAN SONAR AND DIVER INVESTIGATION REVEALED CHUNKS OF CONCRETE, THE LARGEST 5 FT OFF THE BOTTOM, LEAST DEPTH WAS 21 FT.

Survey Summary

Survey Position: 27° 36' 56.8" N, 082° 38' 35.0" W

Least Depth: 7.03 m (= 23.06 ft = 3.844 fm = 3 fm 5.06 ft)

TPU (±1.96σ): **THU (TPEh)** ±1.967 m ; **TVU (TPEv)** ±0.268 m

Timestamp: 2011-073.16:29:32.221 (03/14/2011)

Survey Line: h12018 / s3004_reson8125 / 2011-073 / _069_1629

Profile/Beam: 160/131

Charts Affected: 11411_1, 11415_1, 11416_1, 11412_1, 1114A_1, 11400_1, 1113A_1, 11420_1, 11451_17, 11006_1, 11013_1, 411_1

Remarks:

Contact detected in 200% SSS coverage and investigated using MBES . Item determined to be AWOIS 10310, Charted 21 ft obstruction.

Feature Correlation

Source	Feature	Range	Azimuth	Status
_069_1629	160/131	0.00	000.0	Primary
tb100804145800	0001	0.77	163.7	Secondary (grouped)
tb100519135800	0001	3.35	273.7	Secondary (grouped)
AWOIS H12018	AWOIS # 10310	3.80	256.5	Secondary (grouped)
tb100519142500	0001	5.85	079.2	Secondary (grouped)

Hydrographer Recommendations

Update obstruction per current survey depth and position.

Cartographically-Rounded Depth (Affected Charts):

23ft (11411_1, 11415_1, 11416_1, 11412_1, 11451_17)

3 ¾fm (1114A_1, 11400_1, 1113A_1, 11420_1, 11006_1, 11013_1, 411_1)

S-57 Data

Geo object 1:	Obstruction (OBSTRN)
Attributes:	EXPSOU - 2:shoaler than range of depth of the surrounding depth area
	QUASOU - 1:depth known
	SORDAT - 20110411
	SORIND - US,US,nsurf,H12018
	TECSOU - 2,3:found by side scan sonar,found by multi-beam
	VALSOU - 7.030 m
	WATLEV - 3:always under water/submerged

Office Notes

Concur. Update obstruction per current survey depth and position.

Feature Images

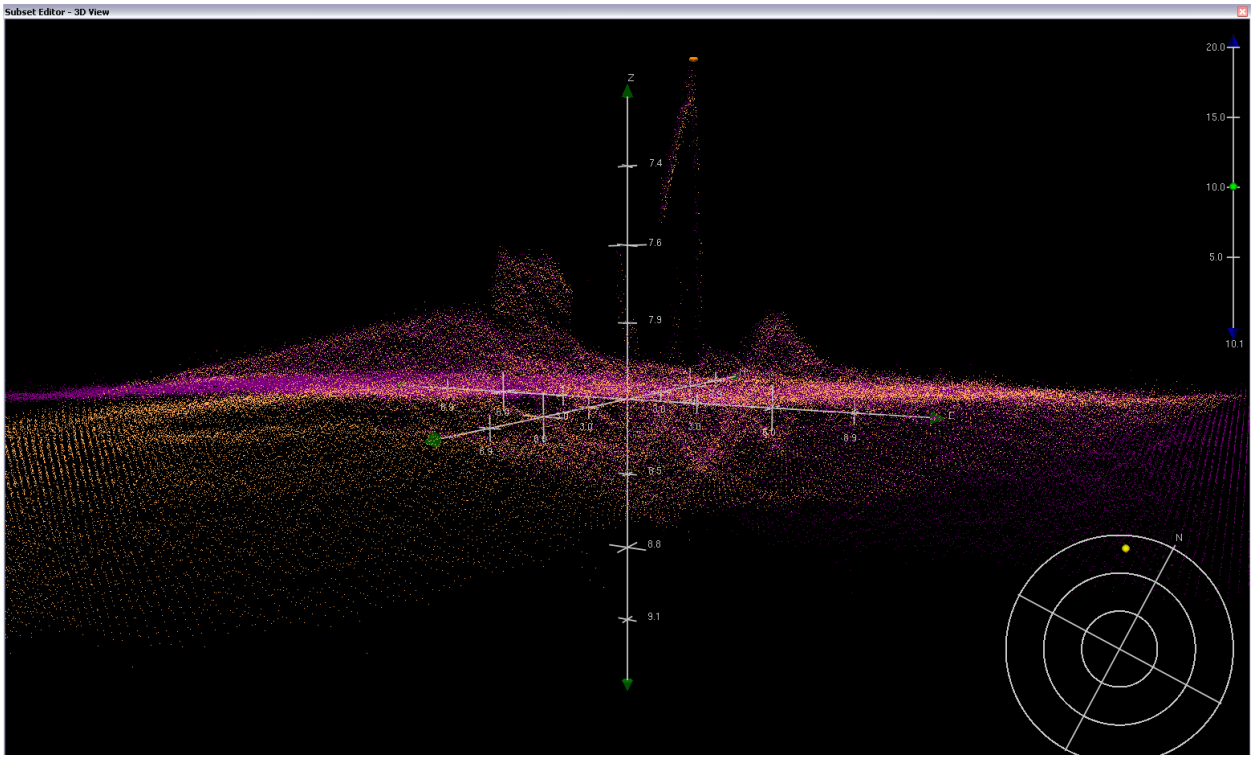


Figure 1.8.1

UNITED STATES DEPARMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Service
Silver Spring, Maryland 20910

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE : May 17, 2011

HYDROGRAPHIC BRANCH: Pacific
HYDROGRAPHIC PROJECT: OPR-J417-NRT1-2011
HYDROGRAPHIC SHEET: H12018

LOCALITY: Port Manatee to Sunshine Skyway Bridge, Tampa Bay, FL
TIME PERIOD: February 09, 2010 - April 11, 2011

TIDE STATION USED: St. Petersburg, FL 872-6520
Lat.27° 45.6' N Long. 82° 37.6' W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 0.602 meters

TIDE STATION USED: Port Manatee, FL 872-6384
Lat. 27° 38.3' N Long. 82° 33.7' W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 0.585 meters

TIDE STATION USED: Old Port Tampa, FL 872-6607
Lat. 27° 51.5' Long. 82° 33.2'
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 0.652 meters

TIDE STATION USED: McKay bay Entrance, FL 872-6667
Lat. 27° 54.8' Long. 82° 25.5'
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 0.710 meters

REMARKS: RECOMMENDED Zoning/Grid

Please use the preliminary zoning file "J417NRT12010CORP" submitted with the 2010 project instructions for OPR-J417-NRT1-2010. Zones TB22, TB39, TB42, TB44, TB45, TB47, TB50 and TB54 are the applicable zones for H12018 during the time period between Feburary 09 - August 18, 2010.

Please use the TCARI grid "J417NRT12011.tc" as the final grid for project OPR-J417-NRT1-11, H12018, during the time period of Feburary 16 - April 11, 2011.

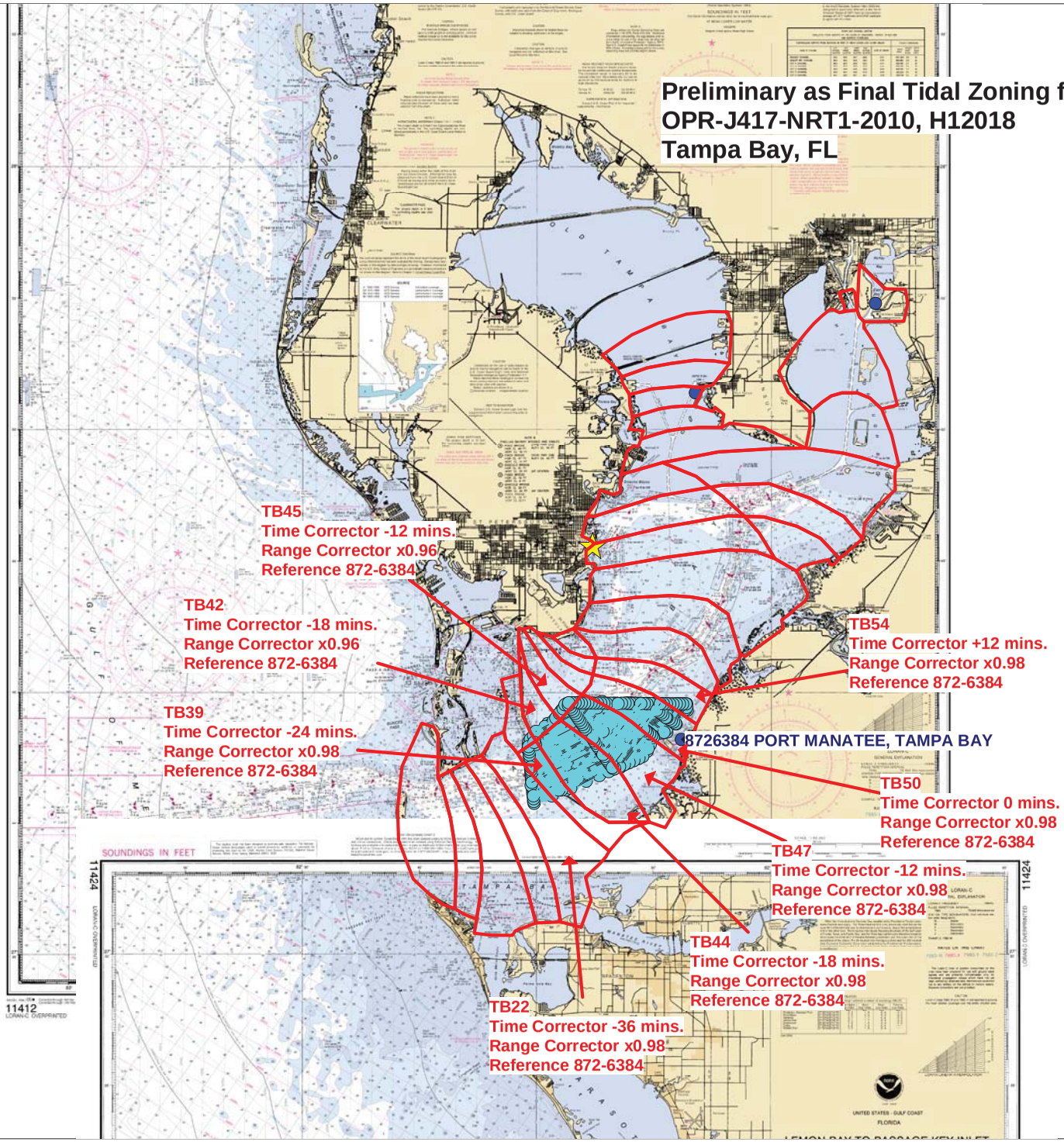
Refer to attachments for grid information.

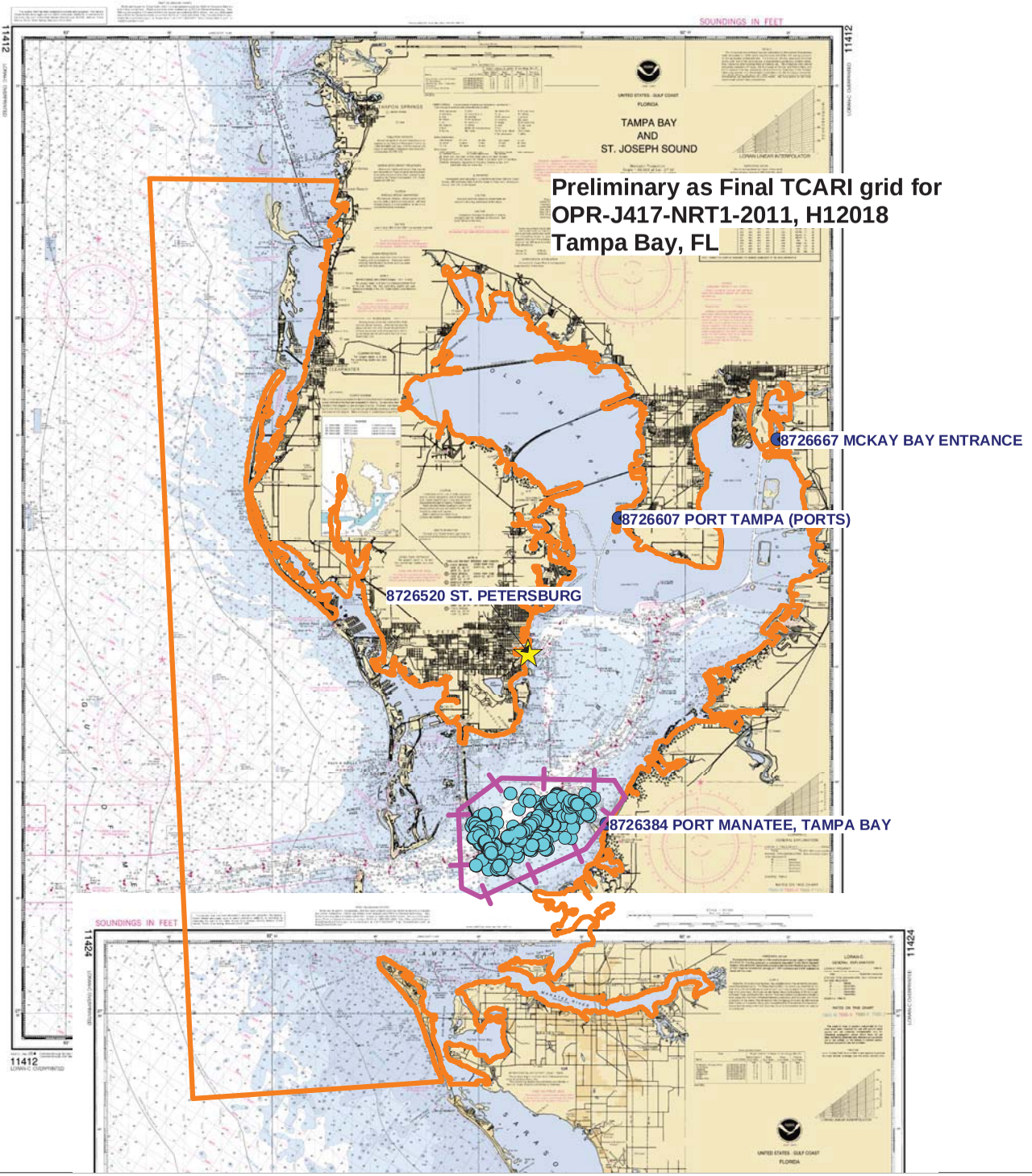
Note 1: Provided time series data are tabulated in metric units (meters), relative to MLLW and on Greenwich Mean Time on the 1983-2001 National Tidal Datum Epoch (NTDE).

Peter J. Stone

Digitally signed by Peter J. Stone
DN: cn=Peter J. Stone, o=Oceanographic Division, ou=NOAA/NOS/CO-OPS, email=peter.stone@noaa.gov, c=US
Date: 2011.05.18 07:08:44 -04'00'

CHIEF, OCEANOGRAPHIC DIVISION


Preliminary as Final Tidal Zoning for
OPR-J417-NRT1-2010, H12018
Tampa Bay, FL
TB45
Time Corrector -12 mins.
Range Corrector x0.96
Reference 872-6384
TB42
Time Corrector -18 mins.
Range Corrector x0.96
Reference 872-6384
TB54
Time Corrector +12 mins.
Range Corrector x0.98
Reference 872-6384
TB39
Time Corrector -24 mins.
Range Corrector x0.98
Reference 872-6384
8726384 PORT MANATEE, TAMPA BAY
TB50
Time Corrector 0 mins.
Range Corrector x0.98
Reference 872-6384
TB47
Time Corrector -12 mins.
Range Corrector x0.98
Reference 872-6384
TB44
Time Corrector -18 mins.
Range Corrector x0.98
Reference 872-6384
TB22
Time Corrector -36 mins.
Range Corrector x0.98
Reference 872-6384
SOUNDINGS IN FEET
11424
11412


Preliminary as Final TCARI grid for
OPR-J417-NRT1-2011, H12018
Tampa Bay, FL
8726667 MCKAY BAY ENTRANCE
8726607 PORT TAMPA (PORTS)
8726520 ST. PETERSBURG
8726384 PORT MANATEE, TAMPA BAY
TAMPA BAY
AND
ST. JOSEPH SOUND
SOUNDINGS IN FEET
11412
11424

PHB Compilation Log

General Survey Info

Survey Number	H12018	Field Unit	NRT 1	State	FL	UTM Zone	17N
Project Number	OPR-J417-NRT1-11	Project Name (Locality)	Tampa Bay, FL.				
Start Date	04/01/2010	Sublocality	Port Manatee to Sunshine Skyway Bridge				
End Date	04/11/2011	Survey Scale	1:10,000	Compilation Scale	1:40,000		

Affected Raster Charts

Chart	KAPP	Scale	Edition	Date	NTM Date
11415	2981	1:40000	8	08/01/2006	11/26/2011
11416	2983	1:40000	10	10/01/2008	11/26/2011

Add Chart | Remove Chart

Affected Electronic Charts

ENC	Scale
US5FL11M	1:40000
US5FL12M	1:40000

Add ENC | Remove ENC

Spatial Reference

Horizontal Datum	WGS84
Coordinate System	LLDG
Sounding Datum	MLLW
Vertical Datum	MHW

Junction Surveys

Survey Number	Survey Date	Location Relative to Current Survey
H12019	2009-2010	W
H12020	2009-2010	N

Add Survey | Remove Survey

HCell Compiler	Fernando Ortiz	QC Reviewer	Peter Holmberg	SAR Reviewer	Adam Argento

Source Surfaces

Resolution	File Name
4m	H12018_4m_Combined

PHB Compilation Log

Processing Info

Add Surface | Remove Surface

Supporting Documents	
Name	Version
Specs and Deliverables	April 2011
HCell Specs	6.1

Add Doc | Remove Doc

Software Used		
Software	Version, HF	Used For
CARIS HIPS	7.1 SP2 HF3	SAR Review. Inspection of Combined BASE Surfaces.
Pydro	11.8	SAR Review. Generation of Features Reports.
CARIS BASE Editor	3.2 HF2	Creation of soundings and bathy-derived features, meta area object, and Blue Notes; Survey evaluation and verification; Initial HCell assembly.
CARIS S-57 Composer	2.2 HF4	Final compilation of the HCell, correct geometry and build topology, apply final attributes, export the HCell, and QA.
CARIS GIS	4.4a	Setting the sounding rounding variable for conversion of the metric HCell to NOAA charting units with NOAA rounding. (For Fathoms and Feet chart units only.)
CARIS HOM	3.3 SP3 HF8	Perform conversion of the metric HCell to NOAA charting units with NOAA rounding. (For Fathom and Feet chart units only)
CARIS Plot Composer	5.1 SP 2	Generate plots of CARIS Session files used for QC.
HydroService, dKart Inspector	5.1	Validation check of the base cell file.
Fugawi View ENC	1.0.0.3	Independent inspection of final HCells using COTS viewer.

Product Info

Deliverables	
Chart Scale HCell	H12018_CS.000
Survey Scale HCell	H12018_SS.000
HCell Report for MCD	H12018_HR.pdf
Feature Listing	H12018_FL.txt
Descriptive Report	H12018_DR.pdf
Survey Outline	H12018_Outline.gml and .xsd

Horizontal and Vertical Units

During creation of the HCell all soundings and features are maintained in metric units with as high precision as possible. Depth units for soundings measured with sonar maintain millimeter precision. Depths on rocks above MLLW and heights on islets above MHW are typically measured with range finder, so precision is less.

Depth Units (DUNI)	Feet
Height Units (HUNI)	Feet
Positional Units (PUNI)	Meters

PHB Compilation Log

Radius Setting

A survey-scale sounding (SOUNDG) feature object layer was built from the Combined Surface in CARIS BASE Editor. A shoal-biased selection was made at survey scale using a Radius Table file with values shown below.

Radius (mm)	Min. Depth (m)	Max Depth (m)
3	-4.7	10
4	10	20
4.5	20	50
5	50	500

Contours

Depth contours at the intervals on the largest scale chart are included in the SS HCell for MCD raster charting division to use for guidance in creating chart contours. With the exception of the zero contours included in the *_CS file, contours have not been deconflicted against shoreline features, soundings and hydrography.

Charted Contours	Metric Equivalent	Metric- NOAA Rounded	Chart Contours - NOAA Rounded
6ft	1.8288	2.0574	6.75ft
12ft	3.6576	3.8862	12.75ft
18ft	5.4864	5.715	18.75ft
30ft	9.144	9.3726	30.75

Add Contour | Remove Contour

Additional Info

Contact Information

Inquiries regarding this HCell content or construction should be directed to:

HCell Compiler: Fernando Ortiz

Phone Number: 206.526.6859

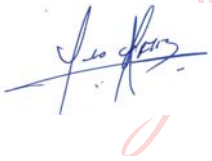
Email: fernando.ortiz@noaa.gov

Compilation Comments

APPROVAL SHEET
H12018

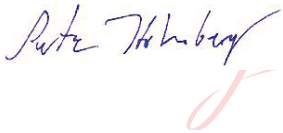
Initial Approvals:

The survey evaluation and verification has been conducted according to branch processing procedures and the HCell compiled per the latest OCS HCell Specifications.



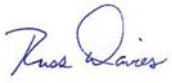
Digitally signed by Fernando Ortiz
DN: cn=Fernando Ortiz, o=NOAA, ou=PHB, email=fernando.ortiz@noaa.gov, c=US
Date: 2012.03.20 13:16:07 -07'00'

The survey and associated records have been inspected with regard to survey coverage, delineation of the depth curves, development of critical depths, S-57 classification and attribution of soundings and features, cartographic characterization, and verification or disproval of charted data within the survey limits. The survey records and digital data comply with OCS requirements except where noted in the Descriptive Report and are adequate to supersede prior surveys and nautical charts in the common area.



Digitally signed by Peter S. Holmberg
DN: cn=Peter S. Holmberg, o, ou, email=peter.holmberg@noaa.gov, c=US
Date: 2012.03.20 14:20:12 -07'00'

I have reviewed the HCell, accompanying data, and reports. This survey and accompanying digital data meet or exceed OCS requirements and standards for products in support of nautical charting except where noted in the Descriptive Report.



Digitally signed by Russ Davies
Reason: signing for Dave Zezula
Date: 2012.03.20 14:26:23 -07'00'